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BOOKS.

Plane and Spherical Trigonometry and Four-Place Tables of Logarithms. By William Anthony Granville, Ph. D., Sheffield Scientific School, Yale University. 8vo. Cloth. xi+264 pp.+38 pp. of Tables. Price, $1.25. Boston and Chicago: Ginn & Co.

The subject of Trigonometry as presented in this book is in accordance with the latest and most approved methods. Trigonometric Functions are defined as ratios, first for angles less than a right angle and then extended to angles in general. A valuable feature of the book is the fact that the degree of accuracy which may be expected in a result found by the aid of the tables is clearly indicated. In the treatment of oblique spherical triangles the author makes use of the Principle of Duality, whereby nearly half of the work usually required in deriving the standard formulae is saved and the usual six cases are reduced to three. A large number of illustrative problems are worked out under each topic and a large number of well graded exercises are given. The typography and mechanical execution of the book are very beautiful and artistic. B. F. F.

An Introduction to the Study of Integral Equations. By Maxime Bôcher, B. A., Ph. D., Professor of Mathematics in Harvard University. 8vo. Paper cover. 3+72 pages. Price, 2s, 6d. Cambridge: Cambridge University Press.

In this tract, the author has presented the main portions of the Theory of Integral Equations in a readable and accurate form. It has followed roughly the line of historical development, beginning with Abel's Mechanical Problem. It is believed that the careful student is here furnished with a firm foundation upon which he may build further study and investigation, while the more superficial reader will be satisfied with the concise and precise statements of results. B. F. F.

Spezielle Ebene Kurven, von Dr. Heinrich Wieleitner, Gymnasiallehrer am hum. Gymnasium Speyer, mit 189 Figuren im Text. Gr. 8°. xvi+409 Seiten. Preis, in Leinwand gebunden, M. 12. Leipzig: G. J. Goeschen'sche Verlogshandlung.

This is a very valuable book on special algebraic and trancendental plane curves. Here is to be found a full treatment of the Cissoid, Conchoid, Lemniscate, Cartesian Ovals, Roulettes, Spirals, etc., etc. Many generalizations of these curves are made and their properties are derived. The book is of special value to the student of modern Geometry.

B. F. F.

Correlation of Efficiency in Mathematics and Efficiency in Other Subjects. A Statistical Study. By Professor H. L. Rietz, Ph. D., and Miss Imogene Shade, A. B., November, 1908. 20 pages. Price, 35 cents.

This is the latest number of *The University Studies,* published by the University of Illinois. It is a scientific comparison of the grade of work students do in mathematics, foreign languages and natural sciences. The data, covering a period of nineteen years, were procured from the Registrar of the University of Illinois. The method of investigation may be characterized as the statistical method of Galton and Pearson. The paper presents some new points in the theory of statistics, but the main result of general interest is the discovery that a student who is good in mathematics is also good in foreign languages or in natural sciences, or *vice versa.* The authors call attention to the important educational value of these results. L. J. P.

First Course in Calculus. By E. J. Townsend, Ph. D., (Goettingen) Professor of Mathematics, University of Illinois, and G. A. Goodenough, M. E. (Illinois), Associate Professor of Mechanical Engineering, University of Illinois. Large 8vo. Cloth. xii+466 pages. Price, $2.00. New York: Henry Holt & Co.

Among the excellent works on the Calculus which have recently appeared, the one under consideration must be accorded a very high rank. The presentation of the fundamental principles of the Calculus are rigorously established, the arrangement of subjects is logical, and the material selected eminently practical. The illustrations and applications from Physics are commendable. The book is one well suited for class room purposes and also for self-instruction and supplementary reading. This work is a worthy contribution to the literature of the subject. B. F. F.

The Principles of Mechanics for Students of Physics and Engineering. By Henry Crew, Ph. D., Fayerweather Professor of Physics in Northwestern University. 8vo. Cloth. ix+295 pp. Price, $1.50. New York: Longmans, Green & Co.

The author's efforts, as stated in the preface, have been: (1) To lead the student to clear dynamical views in the shortest possible time, without sacrificing him on the altar of logic, yet pursuing a route which he can afterwards follow with safety; (2) to build the discussion upon a few simple experiments and upon definitions which convey at once the physical meaning of the quantities defined; (3) to follow the example of Főppl in using vector analysis merely to present a clear, simple, and accurate picture of the facts, reserving the Cartesian analysis for purposes of computation; (4) to confine the treatment to that part of mechanics which is common ground for the physicist and the engineer; (5) to reduce the inherent difficulties of the subject to a minimum by treating dynamics in two analogous parts—rotational and translational—such that if either one is given the other may be immediately deduced; and (6) to employ only two systems of units, the absolute C. G. S. and the "British Engineers." In our opinion, the author has executed his purpose most admirably and has given the teacher of mechanics a teachable book.

B. F. F.

A Manual of Practical Physics for Students of Engineering. By Ervin Sidney Ferry, Professor of Physics, Purdue University, and Arthur Taber Jones, Assistant Professor of Physics, Purdue University. Vol. I. Fundamental Measurements and Properties of Matter. Heat. 8vo. Cloth. xi+273 pp. Price, $1.75. New York: Longmans, Green & Co.

This work furnishes the student of pure and applied science with a manual of the theory and manipulation of those measurements which bear most directly upon his work in other departments of study and also upon his professional career. The description and theory of each experiment is very clear and the material well selected. However, the book, in our judgment, would have been improved had the authors inserted a blank form for the data and results of each experiment. It is the purpose of the authors to complete the course in three volumes, the last two of which are in preparation. B. F. F.

Théorie et Applications des Equations du Second Degré a l'usage des Eléves de Seconde et Primiere C et D et de Mathematiques A et B. Par J. Juhel-Rénoy. Paris: Vubert et Nony Editeurs. 251 pages.

This book treats very fully the equation of the second degree, also rational fractions whose numerators and denominators are of the second degree, and inequalities of the second degree. Biquadratic equations reducible to quadratics are discussed in Book III, chapter I and reciprocal equations in chapter II of this book and irrational equations in the last chapter, III. B. F. F.